WILLARS et al
Serial No. 10/068,012

Atty Dkt: 2380-599
Art Unit: 2683

REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Amend independent claim 1 to include limitations from (now cancelled) dependent claim 2; amend independent claim 31 to include limitations from (now cancelled) dependent claim 32; and, amend independent claim 59 to include limitations from (now cancelled) dependent claim 67.
2. Respectfully traverse all prior art rejections.
3. Request a one month extension of time.

B. SELECTED COMMENTS REGARDING THE DISCLOSURE

Applicants have solved a handover problem in a radio access network, and especially the problem of the mobile station measuring the signal strengths of the serving base station and neighboring base stations for evaluation of which base station is the best for serving the mobile station. Such measurements consume considerable capacity of the mobile station. Moreover, if many base stations are to be measured, in view of the capacity constraints either the measurement cannot be updated very frequent or the quality of the measurement is negatively effected.

In some instances, networks, or at least parts of networks, may be shared between operators, while other networks or parts of other networks may be reserved exclusively for use by the subscribers of a single operator. In such instances of the neighboring base stations to a base station currently serving a mobile station, only a subset of the neighboring base stations may be allowed for serving the mobile station in view of network or subscriber constraints or the like.

Advantageously, Applicants inform the mobile station (e.g., user equipment unit) of a filtered list of neighboring base stations which are all allowed for use by the mobile station. Accordingly, the mobile station measures the signal strengths of the filtered list only. Therefore, at handover to a new base station, the mobile station is informed (via a message) of the subset of base stations on which to measure, instead of having to measure on all neighboring base stations. Beneficially, Applicants thereby limit the measurements made by the mobile station to those base stations that are truly allowed for serving the mobile station and which are true candidates for handover.

B. PATENTABILITY OF THE CLAIMS

Claims 1-68 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,038,449 to Corriveau et al in view of U.S. Patent 6,178,164 to Wang et al. All prior art rejections are respectfully traversed for at least the following reasons.

The Office Action properly admits that Corriveau does not disclose transmitting to the user equipment unit a message including a filtered list of cells. The Office Action interprets Wang as transmitting to the user equipment unit a message including an alleged filtered list of cells, the filtered list supposedly including a first subset of cells but not a second subset of cells. The Office Action concludes that it would be obvious to use the Wang technique in Corriveau's invention to improve method and apparatus for performing handoff.

Applicants respectfully disagree. What Wang describes as an idle handoff is not an operation germane to Applicants' claims, and does not result in a measuring on the cells on the Wang handoff list. (All independent claims have been amended to include the requirement that the filtered list of cells comprise cells for whose channels the user equipment unit is to perform measurements). Moreover, there is no reason or motivation for Corriveau to use the Wang technique, and thus no plausible basis to combine the two

references. Nor would the postulated combination realize the claimed invention, particularly since both references lack transmission to a user equipment unit of a filtered list of cells upon which the user equipment unit is to measure.

Wang discloses both a neighbor list 50 (see Fig. 3A) and a handoff list 60 (see Fig. 3B), with handoff list 60 being a subset of neighbor list 50 (see col. 7, lines 28 – 37). However, the state of operation (system access state) of Wang's mobile when the handoff list 60 is utilized, and the purpose and use of handoff list 60 in the system access state, are totally dissimilar to Applicants' use of the claimed filtered list.

Wang takes great pains to point out that his invention relates to "idle handoff", and particularly to paging. In this regard, Wang begins in col. 1, line 60 with a discussion of soft handoff generally, but in about col. 2, line 62 narrows his focus to paging. Wang explains particularly that when a mobile station originates a call or receives a page, the mobile station enters a "system access state" (col. 3, lines 37+). Wang states that the paging channel typically does not support soft handover (col. 4, lines 3+). Wang further bemoans the problem that, in some cases in the system access state, the mobile station cannot correctly receive the signaling messages sent on the paging channel (col. 4, line 23+). Wang concludes his background by declaring there is a need for soft handover while the mobile station is in the system access state (col. 4, lines 53+).

Wang declares that his invention "describes further modifications which can improve operation on the paging and access channels. The present invention thus permits handoffs while the mobile station is in the system access state" (col. 5, lines 16+). It is in the system access state that Wang's mobile station receives a channel assignment for paging purposes.

In his detailed description, Wang describes mobile station 2 as monitoring the paging channel (col. 6, lines 46+), and describes the aforementioned neighbor list 50 and handover list 60 as being used during the idle mode (col. 6, lines 57+). It is clear that the handoff list 60 is used during the system access state:

> In the present invention base station 26a transmits to mobile station 2 handoff list 60 of base stations to which mobile station 2 is permitted to perform idle handoff *while in the system access state*. (col. 7, lines 27 – 30, emphasis supplied).

The purpose of receiving the handoff list 60 is to provide an adequate number of base stations to which the mobile station is to listen, so that mobile station 2 will be assured of obtaining a channel assignment upon which communications can be conducted. Applicants submit that the purpose of the handoff list 60 supplied by Wang is for providing the mobile station with ample opportunities to receive the paging information. Thus, the handoff described by Wang is not the conventional soft handoff that occurs in a connected mode of operation (i.e., when the mobile station is involved in a connection[1]). Moreover, Applicants see no indication whatsoever that Wang's mobile station 2 is directed to or actually does measure the base stations included on Wang's handoff list 60.

Wang addresses the problem that transmitted page messages are not always successfully received by an addressed mobile station. In such a situation the mobile station has no connection for an ongoing service with the radio network, and is in idle mode. The purpose of the page is a network initiation of such a service connection. When the mobile station is in the idle mode, it normally monitors the paging channel transmitted from just one base station (column 7, lines 14 -20). Wang solves the problem

[1] Conventionally, Handover is a procedure performed when there is a connection for an ongoing service between the mobile station and the radio network.

by informing the mobile station of a list of base stations, LIST_BASE 60, on which page messages will be sent to the mobile station (column 4, line 67 - column 5, line 4). One might incorrectly conclude from Wang's loose language that the Wang mobile station is allowed to make handover to any of the base station assigned to transmit a page, if any, to the mobile station. But such is not the case, and is not what is normally recognized as a handover, *since at this point there is no connection between the mobile station and the network to perform a conventional handover*. The Wang mobile station just monitors certain time slots on which any page to it should be scheduled.

Thus, contrary to Applicants' intent, Wang does not limit the number of base stations/cell the mobile station will need to measure. Rather than simplify operation, Wang increases complexity by increasing the number of base station the mobile station will need to monitor for any page message. (Keep in mind there is a difference in monitoring a base station for paging and measuring for potential handover).

The person skilled in the art would not combine Corriveau and Wang, nor there is there any reason (express or implied) to do so. Corriveau's operation concerns a connected mode of operation with the mobile station involved in a connection. As previously explained, Corriveau's "list of potential candidate cells" has already been communicated between higher-order MSC nodes and action there taken, so there is no reason to download a cell list or the like to the Corriveau mobile station as the Office Action appears to suggest[2].

[2] Corriveau relates to a radio network wherein not all cells/base stations have the same service capabilities. Before a handover is determined, the mobile station measures the signal strength of all the base station/cells neighbouring the serving cell (see, column 5, lines 1-8) and reports to the base station. The base station evaluates the measures, and based upon these measurements, the base station requests the serving mobile switching centre to handover the mobile station to a specified target cell (columns 5, lines 28-35). Then, the serving mobile switching centre decides on any handover based upon both the

Wang, on the other hand, involves paging and the system access state, when the mobile has been in idle mode (not connected mode). Moreover, neither Corriveau nor Wang measure on a list of base stations that fit the description of the claimed filtered list.

Thus, Applicants have the advantage of reducing the number of base stations/cells to be measured by the mobile stations to only such as are true candidates for handing over the service to the mobile station. By reducing the number of base stations/cells left to be measured, measured can be performed more frequently and/or with better quality. Applicants' claims are not defeated by the incorrectly combined and unavailing combination of Corriveau and Wang.

C. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

measurement and the service capabilities of the target cells (columns 5, lines 36 - 43). In the example the target cell is under control of another mobile switching centre. The problem of having information on the capabilities of cells under control of an other mobile switching centre is solved by the switching centres regularly updating such information as is disclosed in relation to Figure 2 of Corriveau. For further discussion of Corriveau, see pages 17 and 18 of the February 16, 2005 amendment.

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Respectfully submitted,
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